

METALLURGICAL INDUSTRY IN THE MORAVIAN-SILESIA REGION AND ITS DEVELOPMENT POSSIBILITIES

VOZŇAKOVÁ Iveta, NIKOLSKAJA Martina, BUMBOVÁ Monika

VSB - Technical University of Ostrava, Faculty of Metallurgy and Materials Engineering, Ostrava, Czech Republic, EU, Iveta.voznakova@vsb.cz

Abstract

The paper deals with the analysis of the development of the metallurgical industry in the Moravian-Silesian Region and the prediction of its development in the coming years, including analysis and prediction of related problems such as unemployment, the environment, etc. The article proposes some options (scenarios) and the possible development of the metallurgical industry, including ways of achieving these objectives together with the tools and resources that could be used.

Keywords: Industry, employment, environment, analysis, development, Moravian-Silesian region

1. INTRODUCTION

The industry is an important sector of the Czech economy and the metallurgical industry in the Moravian-Silesian Region is its integral part. After the Czech Republic joined the European Union in 2004, the Czech metallurgical industry was exposed to an influx of competition and adherence to the EU standard concerning effectiveness and viability. The metallurgical industry is linked to a number of related sectors, particularly engineering, construction and the automotive industry. These industries are among the essential factors defining the position of the Czech economy and employ over 40% of the economically active population.

When focusing specifically on the Moravian-Silesian Region, we can see a decline in heavy industry in the region and the associated unemployment, outflow of people to larger cities at home and abroad, etc. This reality can be reversed by a number of factors which consist, for example, in expanding industrial zones and encouraging investors to come to the region and use its strengths which, among other things, include the existence of a number of stabilized and prospective businesses that generate a large basic economic development potential in comparison with other districts or a number of established brands and relatively high exportability of metallurgical and some engineering products. The article thus not only deals with the history of the metallurgical industry in the region but also analyzes its current situation and predicts its possible directions in the following years.

2. INDUSTRIAL DEVELOPMENT IN THE MORAVIAN-SILESIA REGION

The metallurgical industry in the Moravian-Silesian Region has had a tradition of coal mining and heavy industry for more than fifteen decades. The boom of this industry in the region was given by purposeful coal mining consisting in the beginning of industrial revolution. A significant expansion of the metallurgical industry, however, emerged a century later, during the development of metalworking industries related to the construction of railroads. Ironworks in Vítkovice were established in 1828 exactly for these reasons. From the foundation of the Vítkovice ironworks until the end of the century, Ostrava underwent a clear transformation just in line with the development of mining, smelting works and ironworks. The relationship between the city and its surroundings was also clearly changed. Emerging industrial Ostrava attracted residents from the surrounding area, from Poland and Slovakia, who moved to the region in search of work and enriched the local working class such as foundry workers, miners, construction, factory and railway workers. As increasing numbers of inhabitants in individual districts can be seen in the **Table 1**.

Table 1 Population growth in the years 1869 - 1910 [1]

City	Number of residents (in thousands)		
	1869	1910	Increase
Ostrava	38.78	186.16	147.38
Karviná	8.9	29.88	20.98
Frýdek - Místek	16.72	28.47	11.75
Třinec	12.96	18.06	5.1
Orlová	19.17	28.83	9.66
Český Těšín	6.43	14.71	15.06
Bohumín	4.51	19.57	15.06

An important milestone for the metallurgical industry in the Moravian-Silesian Region was the global crisis that hit the region in the 1930s. In 1934, coal production declined nearly by 50 % compared with the volume of coal-mining before the war. This development of extraction can be seen in **Figure 1**. The same decrease also related to coke production; operation and production of crude steel in the Vítkovice ironworks declined by 65 %. This started a huge wave of layoffs when more than 10,000 residents lost their jobs during two years.

Another essential time for the region followed after 1945 when the city of Ostrava became the regional administrative centre and when the next step of extreme industrialization started. At that time, due to its metallurgical, engineering, coke and chemical industry, as well as black coal deposits, Ostrava was of a crucial importance for the Czechoslovak economy. In the 1980s, it participated in the national production of pig iron (47 %), crude steel (38 %), rolled materials (41 %), coke (72 %) and black coal (14 %). At the time, the economic base of the city provided over 210,000 jobs, including 115,000 jobs in industrial enterprises. [1]

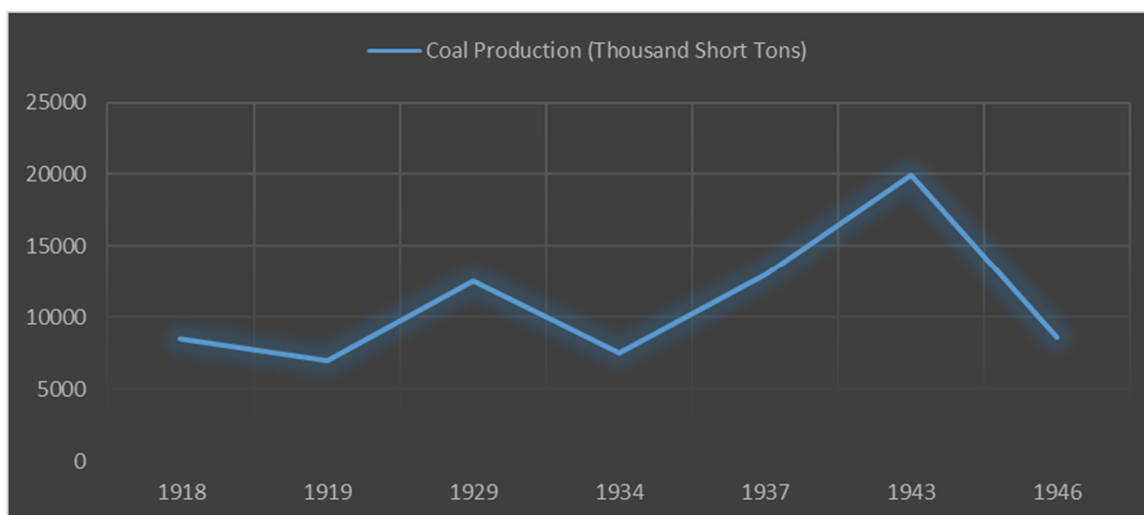


Figure 1 Development of coal mining in the Moravian-Silesian Region in 1918 - 1946 [1]

Difficulties appeared at the beginning of the transition period. The previous industry downturn was also related to a decline in traditional occupations. Rationalization of the mining industry led to the closure of mines which had substantial operating costs of modernizing profitable mines in the Karviná mining district and privatization of most non-mining activities. Reductions in the number of employees are taking place up to this day. In the chart below, we can see the development of unemployment in the Moravian-Silesian Region, which was associated not only with the decline of mining activity but also with decisions of enterprises Vítkovice and Nová huť supporting the so-called managerial path of privatization which consisted in disinterest of the state for

control and restructuring processes, and which thus resulted in the dismissal of thousands of employees [2] (see **Figure 2**).

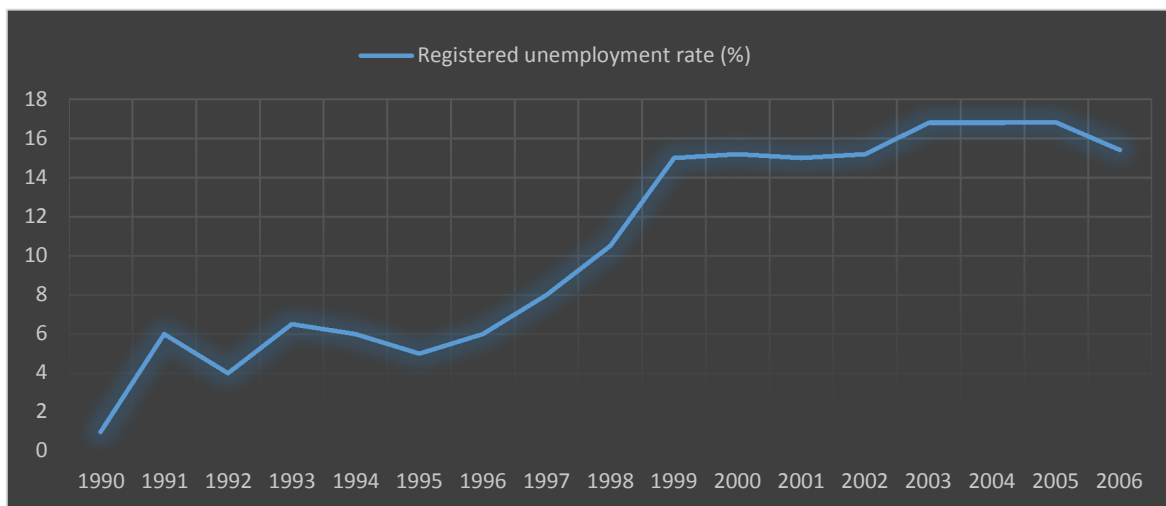


Figure 2 Registered unemployment rate in the Moravian-Silesian Region in 1990 - 2006 [2]

3. CURRENT STATUS OF THE METALLURGICAL INDUSTRY

The Moravian-Silesian Region is marked by its history and heavy industry is gradually being replaced by branches of manufacturing industry. However, three enterprises with metallurgical production - ArcelorMittal Ostrava, Vítkovice Machinery Group and Třinecké železářny (Třinec ironworks) - still operate in the region, currently employing more than 20,000 regional inhabitants. These three companies are among the largest employers in the Moravian-Silesian Region. In addition to these three steel companies, the region has another 15 businesses which focus on the metallurgical industry (according to CZ-NACE). In total, however, there are over 200 industrial enterprises in the region today. Despite the current slow-down of heavy industry and mining, the industrial branches still employ more than a third of the total of 549,100 people (according to the selective Labour Force Survey). **Table 2** shows development of the number of employees in the Moravian-Silesian Region in 2012 - 2014.

Table 2 Development of the number of employees in the Moravian-Silesian Region in 2012 - 2014

	2012	2013	2014
Industry in total	111,496	106,296	104,737
Metallurgical industry	29,193	28,159	28,442

If we focus on threats to the steel industry in the region in terms of replacing steel with different materials, the future of this industry is relatively guaranteed. Technological progress and continuous improvement have made steel an indispensable raw material in the construction industry, engineering industry and transport, and in the increasingly growing infrastructure of information technologies. Together with its 100% recyclability, it is really an exclusive and irreplaceable material.

As a threat to the metallurgical industry not only in the Moravian-Silesian Region or Czech Republic but also in all of Western Europe, we can consider the growing power of world steel producers from Brazil, Russia, India and China, known as BRIC, which try to penetrate the European market with their steel products. Particularly, China produces on average half of the world's steel production which reached 1.6 billion tonnes

in 2015. The decline in the economic growth in China and the associated lower demand encourages steelmakers to expand abroad even at underproduction costs. Specifically, this expansion on the European market has caused the loss of over 5,000 jobs in the French steel industry. Currently, the European Union is engaged in granting market economy status to China, which would mean a reduced ability to impose anti-dumping duties on Chinese imports.

For the steel industry, specifically for the Moravian-Silesian Region and its three steel companies, this may mean a considerable reduction in the production process and associated layoffs of their employees. Specifically, it would mean the dismissal of around 15,000 employees directly employed in steel companies whereas another 45,000 people would lose their jobs in related businesses. In this context, we can expect that granting market economy status to China will double the share of unemployed people in the region within next few years, i.e. the unemployment rate could reach 20 %.

While putting this threat aside, these companies should preferentially continue to strengthen their positions, both in the European market and the markets of the Middle East and Africa, where the potential for growth in the consumption of steel products is highest. Another recommendation includes appropriate investment and a combination of basic and applied research, bringing the successful application of new or modified technologies allowing these companies not only to increase the quality of their products but also to reduce costs of production and lower negative impacts on the environment.

4. BUSINESS SUPPORT IN THE REGION

The development of industry in the Moravian-Silesian region will be affected by several important factors. One of them is the threat of import of cheap steel, especially from China and other third countries. This would essentially stand behind the demise of the steel industry in the Moravian-Silesian region, which has irreplaceable importance for employment and economic and social stability of the region. Since this factor essentially cannot affect any undertaking nor the region itself, there is a need to ensure that those bodies of the region acted as a whole, and appealed to the relevant negotiating bodies and MEPs to promote more aggressive steps and measures that will lead to the protection of the Czech market from steel, manufactured in China and other third countries for the non-market and non-transparent conditions and regardless of the environment. Another factor that will influence the development in the region is the attenuation of the mining industry and the gradual closing down of the company of OKD. Even here it is not possible to influence this development, only mitigate the effects on companies that are tied to the activity of this industry. Mitigation may result in postponing the date of the EU regulation for the granting of public aid for the attenuation of such mines. The effects in both cases will result in an increase in unemployment in the region, as has already been mentioned earlier in the article.

One of the support system for businesses in the region, which would lose, after the decay of the industry, for its customers and the sales of products or services, should be the arrival of new investors, who would then gradually contribute to the economic restructuring of the Moravian-Silesian region.

According to a study by the British fDi Magazine (part of the Financial Times group), Ostrava is the most attractive city in the Czech Republic (see **Figure 3**).

RANK	CITY	COUNTRY
1	Katowice	Poland
2	Wroclaw	Poland
3	Poznan	Poland
4	Ostrava	Czech Republic
5	Lodz	Poland
6	Pizen	Czech Republic
7	Brno	Czech Republic
8	Lublin	Poland
9	Kharkiv	Ukraine
10	Krakow	Poland

Figure 3 Eastern European cities [5]

Reasons why Ostrava and the Moravian-Silesian Region are attractive for investors:

- Significant potential of technical expertise.
- Airport on an international level near Ostrava.
- System university technical and liberal education.
- Existence of a relatively strong and stable research and development base in mining, metallurgy, geology, materials engineering and ecology.
- Favourable position in terms of prospective routes.
- Sufficient potential of qualified or well retrainable workforce in many fields, usable in the development of new economic activities.
- Existence of a number of suitable immovables (land and buildings) for foreign investors.

There are several reasons for the arrival of foreign investors and initiation of their business operations. Investors can use the offers of industrial zones and brownfields where they can realize their entrepreneurial activities, as well as a broad spectrum of investment incentives. Offers of ready strategic zones together with the system of investment incentives support job growth and are perceived as an important instrument for attracting strategic investors in the field of high technologies of manufacturing industry or investors involved in the construction and development of technology centres and centres of strategic services. [3]

For additional support or starting point for the solution to the state of industry downturn in the region, could be targeted support at the regional and state development programs that would focus on retraining, education and infrastructure development, as it was the case in the countries of Western Europe. Western European countries, however, have had the advantage of prompt reactions of the Governments and in a much longer time horizon, in which this transformation has taken place.

5. CONCLUSION

We might derive by the paper some conclusions and recommendations for the future development and direction of the Moravian-Silesian region, which specifically is not too optimistic for metallurgical industry in the region. Big date of the fate of the region could be granting or refusing market economy status of China. Another important milestone might be the transformation of the region after the downturn in the mining industry, and both the state and the relevant ministries to promptly respond to this status. In the solution of the future of the region, the great role may act new investors, whom the region offers financial incentives, industrial zones and brown-fields, as well as sufficiently skilled staff references.

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